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| EXAMINER | |
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| MAPA, MICHAEL Y | |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/590,741 | SUDA, YUKINORI | |
| | Examiner | Art Unit | |
| | Michael Mapa | 2617 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *15 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *27-56* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *27-56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

1. The applicant has amended the followings:

Claims 27 - 31, 34, 44 - 48 and 56 have been amended.

With regards to the claim objections on claims 34 and 56 from the previous office action, the applicant has amended the claims to overcome the objections and therefore the examiner withdraws the claim objections.

With regards to the 101 rejection on claims 44 - 47 of the previous office action, the applicant has amended the claims to overcome the 101 rejection and therefore the examiner withdraws the 101 rejections.

### *Response to Arguments*

2. Applicant's arguments filed 12/15/08 have been fully considered but they are not persuasive.

With regards to the applicant's arguments that "the disclosure in reference does not go so far as to specifically teach that data packets are held back and buffered in the anchor base radio station, in order to solve the drawbacks of the prior art and achieve the benefits of the present invention. Therefore, none of the stated claims can be asserted to be anticipated by Suda." The examiner respectfully disagrees. Suda

discloses in the specification of selectively switching three radio base stations or more (Paragraph [0100] of Suda). Furthermore, Suda discloses not to switch the connection to the radio base station being connected to (second radio base station) and perform connection processing with the new radio base station (third radio base station) immediately after detecting the new radio base station and further make the data, which is buffered by the radio base station formerly connected to (first anchor base station), transferred to the new radio base station (third radio base station) (Paragraph [0102] of Suda). Therefore, Suda anticipates the claimed limitations of the instant application.

### *Specification*

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: “Mitigating packet loss during handover by triggering packet buffering based on signal degradation and packet forwarding thresholds between base stations”.

### *Claim Objections*

4. Claims 1 and 48 are objected to because of the following informalities: Claims 1 and 48 states a "first anchor radio base station" and “said first radio base station”. The examiner requests the applicant to maintain the same claim language used and requests the applicant to change “said first radio base station” to state “said first anchor radio base station”. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 27-31, 33-35, 38, 40, 42, 44, 46, 48-56 are rejected under 35 U.S.C. 102(b) as being anticipated by Suda et al. (US Patent Publication 20030224775 herein after referenced as Suda).

Regarding claim 27, Suda discloses "A mobile communication system including a plurality of radio base stations and a terminal device that can connect with said radio base stations" (Paragraph [0038] of Suda). Suda discloses "comprising: a deterioration detection facility, operable in a state that allows said terminal device to handle handovers from a first, anchor radio base station to a second radio base station and to communicate through a path which passes through said first anchor radio base station, for detecting deterioration in a communication state between said terminal device and said second radio base station" (Paragraphs [0064] & [0102] of Suda, wherein Suda discloses the radio terminal device comparing reception characteristics such as a power level with a preset threshold and wherein when the power level is the preset threshold or below, starts a search for a new radio base station and judges whether or not to

connect to (hand-over) the new base station and wherein Suda discloses making the data buffered by the radio station formerly connected to, to be transferred to the new radio base station, therefore a deterioration detection facility and a path which passes through said first radio base station.) Suda discloses "and a distribution facility operable when said terminal device performs a handover to a radio base station, caused by that the deterioration in said communication state being detected" (Paragraph [0064] of Suda, wherein Suda discloses transmitting a suppression signal, going into power saving mode and searching for a new radio base station to be connected to). Suda discloses "in addition to the packets addressed to said terminal device, to start to buffer said packets by said first radio base station before said terminal device performs the handover and to be buffered in said first radio base station after the handover of said terminal device is completed" (Paragraph [0051] of Suda, wherein Suda discloses buffering the received frames when the operation mode of the radio terminal is judged to be the power saving mode). Suda discloses "for distributing packets addressed to said terminal device, which are newly received, to said terminal device through said third radio base station" (Paragraph [0102] of Suda, wherein Suda discloses not to switch the connection to the radio base station being connected to (second radio base station) and perform connection processing with the new radio base station (third radio base station) immediately after detecting the new radio base station and further make the data, which is buffered by the radio base station formerly connected to (first anchor base station), transferred to the new radio base station (third radio base station)). Suda discloses "in accordance of an order of reception of said

packets" (Fig. 7A – 7D of Suda, wherein Suda discloses a received and transmitted packet sequence, therefore in accordance with an order of reception of said packets). Suda discloses "wherein, upon the handover of said terminal, said first, anchor radio base station switches a radio base station which serves as a destination of the packet" (Paragraph [0102] of Suda, wherein Suda discloses not to switch the connection to the radio base station being connected to (second radio base station) and perform connection processing with the new radio base station (third radio base station) immediately after detecting the new radio base station and further make the data, which is buffered by the radio base station formerly connected to (first anchor base station), transferred to the new radio base station (third radio base station), therefore switching a radio base station which serves as a destination of the packet).

Regarding claim 28, Suda discloses "the mobile communication system according to claim 27, wherein said deterioration detection facility is configured to determine deterioration in said communication state by a detection of a signal reception power" (Paragraph [0064] of Suda, wherein Suda discloses comparing reception characteristics and gives the example of a received power level).

Regarding claim 29, Suda discloses "the mobile communication system according to claim 27, wherein said deterioration detection facility is configured to determine deterioration in said communication state by a bit error rate" (Paragraph [0057] of Suda).

Regarding claim 30, Suda discloses "the mobile communication system according to claim 27, wherein said terminal device is provided with said deterioration

detection facility" (Fig. 4, Paragraph [0056] of Suda, wherein Suda discloses the terminal device to have a MAC control unit 610 that has a reception characteristics monitoring unit).

Regarding claim 31, Suda discloses "the mobile communication system according to claim 27, wherein said first, anchor radio base station is provided with said deterioration detection facility" (Paragraph's [0047] & [0053] of Suda, wherein Suda discloses the first MAC control unit 410 further informs the radio terminal monitoring unit 450 of interruption when the received power level is a preset threshold or less).

Regarding claim 33, Suda discloses "the mobile communication system according to claim 27, wherein said terminal device has change means for changing a radio base station to which the terminal device is going to perform a handover, to another radio base station, in accordance with a result of researching a communication state with another radio base station" (Paragraph [0064] of Suda, wherein Suda discloses the MAC control unit 610 with its reception characteristics monitoring unit, judging whether or not to be connected to the new radio base station).

Regarding claim 34, Suda discloses "the mobile communication system according to claim 32." The examiner rejects claim 34 with the same arguments provided above (see claim 33).

Regarding claim 35, Suda discloses "a radio base station that is used while being connected to a terminal device, comprising: deterioration detection means for detecting deterioration in a communication state with said terminal device;" (Figs. 1 & 2 & Paragraph [0047] of Suda). Suda discloses "detection means for detecting whether or

not packets addressed to said terminal device are forwarded from another radio base station;" (Paragraphs [0100] & [0102] of Suda, wherein Suda discloses the radio base station to judge which base station the radio terminal makes a connection and forwarding the packets from the base station formerly connected to, to the new base station). Suda discloses "storage means for temporarily storing the packets addressed to said terminal device when the deterioration in the communication state is detected and the packets addressed to said terminal device are not forwarded from another radio base station" (Paragraph [0046] of Suda, wherein Suda discloses the frames handed over to the buffer 440).

Regarding claim 38, Suda discloses "a terminal device that can connect with a plurality of radio base stations, comprising: deterioration detection means for detecting deterioration in a communication state with the radio base stations that are connected;" (Paragraph [0057] of Suda, wherein Suda discloses a MAC control unit 610 informing the reception characteristics monitoring unit 630 of interruption when the received power level is or below a preset threshold). Suda discloses "detection means for detecting whether or not the packets addressed to said terminal device are forwarded from another radio base station;" (Paragraphs [0064] & [0102] of Suda, wherein Suda discloses the searching process for the new base station and the MAC control unit 610 decides whether or not to be connected to the new radio base station and forwarding the packets from the base station formerly connected to, to the new base station). Suda discloses "request means for requesting said radio base station to buffer the packets addressed to said terminal device when the deterioration in the communication state is

detected and the packets addressed to said terminal device are not forwarded from another radio base station" (Paragraph [0064] of Suda, wherein the radio terminal sends a transmission suppress signal (request) when the received power level is or below a preset threshold).

Regarding claim 40, Suda discloses "the terminal device according to claim 38, wherein said deterioration detection means measures a reception characteristic in a communication with said connected radio base station and detects deterioration in said communication state" (Paragraph [0057] of Suda).

Regarding claim 42, Suda discloses "the terminal device according to claim 40, wherein said reception characteristic measured by said deterioration detection means is one of a signal reception power from said connected radio base station, a bit error rate, and a packet error rate, or a combination thereof" (Paragraph [0057] of Suda).

Regarding claim 44, Suda discloses "A computer readable medium storing a program that is used in a radio base station connected to a terminal device" (Paragraph [0068] of Suda), in addition the examiner rejects claim 44 with the same arguments provided above (see claim 35).

Regarding claim 46, Suda discloses "A computer readable medium storing a program used in a terminal device that can be connected to a radio base station" (Paragraph [0068] of Suda), in addition the examiner rejects claim 46 with the same arguments provided above (see claim 38).

Regarding claim 48, the examiner rejects claim 48 with the same arguments provided above (see claim 27).

Regarding claim 49, Suda discloses “the mobile communication method according to claim 48”. The examiner rejects claim 49 with the same arguments provided above (see claim 28).

Regarding claim 50, Suda discloses “the mobile communication method according to claim 48.” The examiner rejects claim 50 with the same arguments provided above (see claim 29).

Regarding claim 51, Suda discloses “the mobile communication method according to claim 48, wherein said deterioration in the communication state is determined by a packet error rate” (Paragraph [0057] of Suda).

Regarding claim 52, Suda discloses “the mobile communication method according to claim 48.” The examiner rejects claim 52 with the same arguments provided above (see claim 30).

Regarding claim 53, Suda discloses “the mobile communication method according to claim 48.” The examiner rejects claim 53 with the same arguments provided above (see claim 31).

Regarding claim 54, Suda discloses “the mobile communication method according to claim 48.” The examiner rejects claim 54 with the same arguments provided above (see claim 32).

Regarding claim 55, Suda discloses “the mobile communication method according to claim 48.” The examiner rejects claim 55 with the same arguments provided above (see claim 33).

Regarding claim 56, Suda discloses "the mobile communication method according to claim 54." The examiner rejects claim 56 with the same arguments provided above (see claim 34).

### *Claim Rejections - 35 USC § 103*

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 32, 36, 37, 39, 41, 43, 45 and 47 are rejected under 35 U.S.C. 103(a) as obvious over Suda et al. (US Patent Publication 20030224775 herein after referenced as Suda) in view of Rauhala (US Patent 6611547 herein after referenced as Rauhala).

Regarding claim 32, Suda discloses "the mobile communication system according to claim 27." Suda discloses "request means for requesting a first radio base station buffer the packets addressed to said terminal device before said terminal device performs a handover." (Paragraph [0064] of Suda, wherein Suda discloses sending a transmission suppress signal, going into power saving mode before searching for the new radio base station and connecting to the new radio base station.) Suda discloses a radio base station communicating with the new radio base station by sending the

buffered data to the new radio base station (Paragraph [0102] of Suda). Suda fails to explicitly recite "said second radio base station makes said first radio base station."

In a similar field of endeavor, Rauhala discloses "said second radio base station makes said first radio base station" (Fig. 2, Column 7, Lines 10-25 of Rauhala, wherein Rauhala discloses a first base station sending signaling message to a second base station.)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Suda to incorporate the teachings of Rauhala, the motivation for the combination being to create a better dynamism and utilization of network resources. (Column 3, Lines 13-19 of Rauhala).

Regarding claim 36, Suda discloses "the radio base station according to claim 35." Suda discloses "another radio base station to temporarily store the packets addressed to said terminal device when the deterioration in the communication state is detected" (Paragraph [0051] - [0053] of Suda, wherein Suda discloses buffering the frames when the operation mode is in a power saving mode and discloses detecting the operation mode of the terminal device and sending a transmission suppress signal and going into power saving mode when the received power level is below a threshold). Suda discloses "the packets addressed to said terminal device are forwarded from said another radio base station." (Paragraph [0102] of Suda, wherein Suda discloses the radio base station is communicating with another base station and transferring the buffered data to the new base station).

Suda fails to explicitly recite “a radio base station requesting another radio base station."

In a similar field of endeavor, Rauhala discloses “a radio base station requesting another radio base station” (Fig. 2, Column 7, Lines 10-25 of Rauhala, wherein Rauhala discloses a first base station sending signaling message to a second base station).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Suda to incorporate the teachings of Rauhala, the motivation for the combination being to create a better dynamism and utilization of network resources. (Column 3, Lines 13-19 of Rauhala).

Regarding claim 37, Suda discloses “the radio base station according to claim 35.” Suda discloses “another radio base station to temporarily store the packets addressed to said terminal device” (Paragraphs [0051] - [0053] of Suda, wherein Suda discloses buffering the frames when the operation mode is in a power saving mode and discloses detecting the operation mode of the terminal device and sending a transmission suppress signal (request) and going into power saving mode when the received power level is below a threshold and when it receives a transmission suppress signal.) Suda discloses “a request that another base station temporarily buffers the packets addressed to said terminal device is received from said terminal device” (Paragraph [0064] of Suda, wherein Suda discloses the radio terminal sending a transmission suppress signal and going into power saving mode when the received power level is and below a threshold.) Suda discloses “the packets addressed to said terminal device are forwarded from said another radio base station.” (Paragraph [0102]

of Suda, wherein Suda discloses the radio base station is communicating with another base station and transferring the buffered data to the new base station).

Suda fails to explicitly recite “a radio base station requesting another radio base station."

In a similar field of endeavor, Rauhala discloses “a radio base station requesting another radio base station” (Fig. 2, Column 7, Lines 10-25 of Rauhala, wherein Rauhala discloses a first base station sending signaling message to a second base station.)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Suda to incorporate the teachings of Rauhala, the motivation for the combination being to create a better dynamism and utilization of network resources. (Column 3, Lines 13-19 of Rauhala).

Regarding claim 39, Suda discloses “the terminal device according to claim 38.” Suda discloses “means for requesting said radio base station to buffer the packets addressed to said terminal device when the deterioration in the communication state is detected” (Paragraph [0064] of Suda, wherein Suda discloses the radio terminal sending a transmission suppress signal and going into power saving mode when the received power level is and below a threshold). Suda discloses “the packets addressed to said terminal device are forwarded from said another radio base station” (Paragraph [0102] of Suda, wherein Suda discloses the radio base station communicating with another base station and transferring the buffered data to the new base station). Suda discloses sending a transmission suppress signal (request) and going into power saving mode when the received power level is below a threshold (Paragraphs [0053] of Suda).

Suda fails to explicitly recite "said radio base station to ask another base station".

In a similar field of endeavor, Rauhala discloses "said radio base station to ask another base station" (Fig. 2, Column 7, Lines 10-25 of Rauhala, wherein Rauhala discloses a first base station sending signaling message to a second base station).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Suda to incorporate the teachings of Rauhala, the motivation for the combination being to create a better dynamism and utilization of network resources. (Column 3, Lines 13-19 of Rauhala).

Regarding claim 41, Suda discloses "the terminal device according to claim 39, wherein said deterioration detection means measures a reception characteristic in a communication with said connected radio base station and detects deterioration in said communication state" (Paragraph [0057] of Suda).

Regarding claim 43, Suda discloses "the terminal device according to claim 41, wherein said reception characteristic measured by said deterioration detection means is one of a signal reception power from said connected radio base station, a bit error rate, and a packet error rate, or a combination thereof" (Paragraph [0057] of Suda).

Regarding claim 45, Suda discloses "the program medium according to claim 44." The examiner rejects claim 45 with the same arguments provided above (see claim 36).

Regarding claim 47, Suda discloses "the program medium according to claim 46." The examiner rejects claim 45 with the same arguments provided above (see claim 39).

***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Mapa whose telephone number is (571)270-5540. The examiner can normally be reached on MONDAY TO THURSDAY 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on (571)272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Mapa/
Examiner, Art Unit 2617

/NICK CORSARO/
Supervisory Patent Examiner, Art Unit 2617